

Section 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

TRADE NAME: TIFI® MG

Application: Fireside Additive

Manufacturer: FUEL TECH, INC.
27601 Bella Vista Pkwy
Warrenville, IL 60555

Information Number: 630.845.4500 or 800.666.9688

Emergency Number: CHEMTREC - 1.800.424.9300 (24 hours)

Recommended use of the chemical or restrictions on use: Fireside Additive

SDS Date of Preparation/Revision: October 21, 2019

SECTION 2 - HAZARD IDENTIFICATION

GHS Classification:

Physical:	Health:	Environmental
Non-Hazardous	Non-Hazardous	Non-Hazardous

Label Elements: None

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS #	GHS Classification	Approx. % (w/w)
Water	7732-18-5	Not Classified	40-45
Magnesium Hydroxide	1309-42-8	Not Classified	55-60

See Section 16 for further information on GHS Classification.

Exact percentages are a trade secret.

SECTION 4 - FIRST AID INFORMATION

Eye Contact: Flush eyes with plenty of water while holding eyelids open. If symptoms develop, seek medical advice.

Skin: Flush affected area with water. If symptoms develop, seek medical advice.

Ingestion: Get medical attention if symptoms occur. Do not induce vomiting without medical advice. If conscious, wash out mouth and give water to drink. If reflexive vomiting occurs, rinse mouth and repeat administration of water.

Inhalation: Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

Most Important Symptoms: May cause slight eye irritation.

Indication of Immediate Medical Attention/Special Treatment: Immediate medical attention should not be required.

SECTION 5 - FIRE FIGHTING

Suitable (and Unsuitable) Extinguishing Media: Not expected to burn. Use extinguishing media appropriate for surrounding fire.

Specific Hazards Arising from the Chemical: Not flammable or combustible.

Special Protective Equipment and Precautions for Fire Fighting: In case of fire, wear a full face positive-pressure self-contained breathing apparatus and protective suit.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

In case of transportation accidents, call the following 24-hour telephone number: 1.800.424.9300 (CHEMTREC).

Personal Precautions, Protective Equipment, and Emergency Procedures: Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible. Ensure clean-up is conducted by trained personnel only. Do not touch spilled material. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Notify appropriate government, occupational health and safety and environmental authorities.

Methods and Materials for Containment and Cleaning Up:

Small Liquid Spills: Soak up spill with absorbent material. Place residues in a suitable, properly labeled container. Wash affected area.

Large Liquid Spills: Contain large spills using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal.

Environmental Precautions: Do not contaminate surface water.

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling: Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe mists. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

Conditions for Safe Storage, Including Any Incompatibilities: Store in suitable labeled containers. Store the containers tightly closed.

Sensitivity to Static Discharge: Not expected to be sensitive to static discharge.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any substance that has an established exposure limit.

CHEMICAL	EXPOSURE LIMIT
Non-Hazardous Ingredients	None Established
Magnesium Hydroxide	None Established

Engineering Measures: General ventilation is recommended.

Respiratory Protection: Respiratory protection is not normally needed. In operations where concentrations are elevated, a NIOSH approved respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.

Hand Protection: Impervious gloves such as rubber recommended.

Skin Protection: Wear standard protective clothing.

Eye Protection: Safety glasses or chemical safety goggles recommended if eye contact is possible.

Hygiene Recommendations: Use good work and personal hygiene practices to avoid exposure. If clothing is contaminated, remove clothing and launder clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never, eat, drink, or smoke.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Slurry
Color/Appearance:	Milky White
Odor:	None
pH (100%)	10
Density:	12.3 to 13.5
Relative Density:	1.48 to 1.62
Boiling Point:	212°F / 100°C
Melting Point	Not determined
Solubility in Water:	Partial
Percent Volatile	Not determined
Coefficient of Water / Oil Distribution	Not determined
Vapor Pressure	Not determined
Vapor Density	Not determined
Evaporation Rate	Not determined
Viscosity	Not determined
Flash Point:	None
Flammability	Non-Flammable
Flammability Limits: LEL	Not applicable
Flammability Limits: UEL	Not applicable
Explosive Properties	None
Autoignition Temperature	Not applicable
Decomposition Temperature	Not determined
Oxidizing Properties	None
Note: These physical properties are typical values for this product and are subject to change.	

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: Product is stable under normal conditions.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: None known.

Incompatible Materials: Strong acids. Contact with strong acids (e.g., sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering, or boiling and toxic vapors.

Hazardous Decomposition Products: Under fire conditions - oxides of carbon.

SECTION 11 - TOXICOLOGICAL INFORMATION

Eye Contact: May cause slight irritation.

Skin Contact: May cause irritation with prolonged contact.

Ingestion: Not a likely route of exposure. No adverse effects expected.

Inhalation: Not a likely route of exposure. No adverse effects expected.

Sensitization: This product is not expected to be a sensitizer.

Carcinogenicity: None of the substances in this product present at 0.1% or greater are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), the Occupational

Safety and Health Administration (OSHA) or the American Conference of Governmental Industrial Hygienists (ACGIH).

Symptoms of Exposure:

Acute - A review of available data does not identify any symptoms from exposure not previously mentioned.

Chronic - A review of available data does not identify any symptoms from exposure not previously mentioned.

Human Health Hazards: Acute

Human Health Hazards - Chronic: No adverse effects expected other than those mentioned above.

Acute Toxicity Values: No toxicity studies have been conducted on this product.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

Acute Fish Results:				
Species	Exposure	LC50		Test Substance
Fathead Minnow	96 hours	3194 mg/L		Product
Acute Invertebrate Results:				
Species	Exposure	LC50	EC50	Test Substance
Ceriodaphnia dubia	48 hours	1458 mg/L		Product

Persistence and Degradability:

Bioaccumulation Potential: The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite™, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models. If released into the environment this material is expected to distribute to the air, water, and soil/sediment in the approximate respective percentages: <5%; 30 - 50%, 50-70%. The portion in water is expected to be soluble or dispersible.

This preparation or material is not expected to bioaccumulate.

Mobility in Soil : If released into the environmental this material is expected to distribute to the soil/sediment in the approximate percentages: 50-70%

Other Adverse Effects: None Known.

If released into the environment, see CERCLA/SUPERFUND in Section 15.

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal: If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment, or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal, or recycling facility.

SECTION 14 - TRANSPORTATION INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the property Shipping Name/Hazard Class may vary by packaging, properties, and mode of transportation. Typical proper shipping names for this product are:

Land Transport:	Proper Shipping Name:	Product is not regulated during transportation
Air Transport	Proper Shipping Name:	Product is not regulated during transportation

(ICAO/IATA):		
Marine Transport (IMDG/IMO):	Proper Shipping Name:	Product is not regulated during transportation

SECTION 15 - REGULATORY INFORMATION

FEDERAL REGULATIONS:

CERCLA/Superfund, 40 CFR 117, 302:

This product is not subject to CERCLA reporting requirements, however, many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA/Superfund Amendments and Reauthorization Act of 1986 (Title III) - Sections 302, 311, 312 and 313:

Section 302 - Extremely Hazardous Substances (40 CFR 355):

This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

Sections 311 and 312 - Material Safety Data Sheet Requirements (40 CFR 370):

Refer to Section 2 for the OSHA Hazard Classification.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

Section 313 - List of Toxic Chemicals (40 CFR 372):

This product does not contain substances on the List of Toxic Chemicals.

Federal Water Pollution Control Act, Clean Water Act, 40 CFR 401.15 (Formerly Sec. 307), 40 CFR 116 (Formerly Sec. 311):

None of the substances are specifically listed in the regulation.

Clean Air Act, Sec. 111 (40 CFR 60), Sec. 112 (40 CFR 61, 1990 Amendments), Sec. 611 (40 CFR 82, Class I and II Ozone Depleting Substances):

None of the substances are specifically listed in the regulation.

STATE REGULATIONS:

California Proposition 65:

Warning: This product can expose you to lead, nickel, and arsenic compounds, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Michigan Critical Materials:

None of the substances are specifically listed in the regulation.

State Right To Know Laws:

None of the substances are specifically listed in the regulation.

INTERNATIONAL CHEMICAL CONTROL LAWS

Toxic Substances Control Act (TSCA): The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710).

Canadian Environmental Protection Act (CEPA): The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

Europe: The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

Australia: All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS) and are listed on the Australian Inventory of Chemical Substances (AICS).

Japan: All substances in this product comply with the Law Regulating the Manufacture and Importation of Chemical Substances and are listed on the Ministry of International Trade & Industry List (MITI).

Korea: All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL).

The Philippines: All substances in this product comply with the Republic Act 6969 (RA6969) and are listed on the Philippine Inventory of Chemicals & Chemical Substances (PICCS).

SECTION 16 - OTHER INFORMATION

NFPA 704M/HMIS Rating:

Health - 0/0	Flammability - 0/0	Reactivity - 0/0	Other - 0/0
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0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

GHS Phrases for Reference (See Section 2 and 3):

None

SDS Date of preparation/revision: October 21, 2019: Updated Section 15

Revision History: Updated Section 15

October 18, 2018: Updated Section 3

May 3, 2018: Updated Sections 3, 8.

June 16, 2017: Updated Sections 2, 4, 11. Supersedes October 01, 2012 version.

October 01, 2012: Revised

August 13, 2010: Update

January 1, 2010: New MSDS

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

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References:

- 2010 Guide to Occupational Exposure Values, American Conference of Governmental Industrial Hygienists, Cincinnati, OH
- Hazardous Substances Data Bank, National Library of Medicine, Bethesda, MD
- IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.
- Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C

- Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.
- ChemIDPlus, National Library of Medicine, Bethesda, MD
- Safety and Health, Hamilton, ON, Canada
- Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(R) of the Clean Air Act, U.S. Environmental Protection Agency, Washington, D.C.
- Quick Selection Guide to Chemical Protective Clothing, Second Edition, Mansdorf & Associates, Stow, OH
- Table 1 – Register of Critical Materials, Department of Environmental Quality, Official State of Michigan Website.
- California Proposition 65 List, California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Chemicals List, most recent edition.